

ABSTRACT OF THE INVENTION

5 A liquid organic, fuel cell is provided which employs a
solid electrolyte membrane. An organic fuel, such as a
methanol/water mixture, is circulated past an anode of a cell
while oxygen or air is circulated past a cathode of the cell.
The cell solid electrolyte membrane is preferably fabricated
from Nafion™. Additionally, a method for improving the
10 performance of carbon electrode structures for use in organic
fuel cells is provided wherein a high surface-area carbon
particle/Teflon™-binder structure is immersed within a
Nafion™/methanol bath to impregnate the electrode with Nafion™.
A method for fabricating an anode for use in a organic fuel cell
15 is described wherein metal alloys are deposited onto the
electrode in an electro-deposition solution containing
perfluorooctanesulfonic acid. A fuel additive containing
perfluorooctanesulfonic acid for use with fuel cells employing a
sulfuric acid electrolyte is also disclosed. New organic fuels,
20 namely, trimethoxymethane, dimethoxymethane, and trioxane are
also described for use with either conventional or improved fuel
cells.

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